

**DIFFUSION BARRIER COATING FOR SI-BASED COMPONENTS**

ABSTRACT OF THE DISCLOSURE

5    **[0080]**       A component comprising a silicon-based substrate and a diffusion  
barrier coating disposed on the silicon-based substrate. The diffusion barrier  
coating comprises an isolation layer disposed directly on the silicon-based  
substrate and at least one oxygen barrier layer disposed on the isolation layer.  
The oxygen barrier layer prevents the diffusion of oxygen therethrough, and  
10 prevents excessive oxidation of the silicon-based substrate. The isolation  
layer(s) prevent contaminants and impurities from reacting with the oxygen  
barrier layer. An environmental barrier coating may be disposed on the diffusion  
barrier coating, and a thermal barrier coating may be disposed on the  
environmental barrier coating. Methods for making a component having a  
15 diffusion barrier coating are also disclosed.